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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,171	02/24/2004	Chang-Young Kim	46181	8278

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EXAMINER	
ADDY, ANTHONY S	

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/784,171	KIM ET AL.	
	Examiner	Art Unit	
	Anthony S. Addy	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09/12/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Information Disclosure Statement

2. The references listed in the Information Disclosure Statement filed on September 23, 2004, April 21, 2005 and September 12, 2005 have been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamashita, U.S. Patent Number 6,256,500 (hereinafter Yamashita)** and further in view of **Yamaguchi et al., U.S. Publication Number 2001/0017851 A1 (hereinafter Yamaguchi)**.

Regarding claims 1, 4 and 5, Yamashita teaches a method for providing a multicast service from a macrocell or a microcell to a mobile station in a mobile communication system having a hierarchical cell structure in which at least one

microcell area overlaps one macrocell area (see col. 3, lines 6-16, col. 4, line 66 through col. 5, line 12 and Fig. 1), the method comprising the steps of: determining whether a measured field intensity of available channels in the macrocell where the microcell area overlaps satisfies a required threshold level for a specific multicast service (see col. 6, lines 23-34); and receiving by the mobile station the specific multicast service from a base station that controls the macrocell, if the measured field intensity satisfies the required threshold level (see col. 5, lines 30-39 and col. 6, lines 35-51).

Yamashita fails to explicitly teach a carrier-to-interference ratio (C/I), but instead teaches a field intensity of available channels.

However, using a quality indicator such as a measured carrier-to-interference ratio (C/I) and to determine if the measured C/I satisfies the required C/I to provide a service is very well known in the art, since in existing mobile systems a mobile station accesses the best (e.g. higher carrier-to-interference ratio or carrier-to-adjacent ratio) available cell in the radio network, in order to select an optimum available channel in the radio network. In an analogous field of endeavor, Yamaguchi teaches a method of adaptively assigning a packet rate to a mobile station based on measuring a signal quality of a received signal from a base station, wherein a receive signal quality at a mobile station is defined by an interference level at the mobile station (see p. 1 [0010-0011] and p. 3 [0048-0050]).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of using a quality indicator such as a measured carrier-to-interference ratio (C/I) to adaptively assign a packet rate to a

mobile station of Yamaguchi, to the method of Yamashita, in order to decrease undesirable interference to adjacent cells of adjacent base stations and to maintain a high signal quality of a received signal from a base station in communication with the mobile station as per the teachings of Yamaguchi (see abstract).

Regarding claim 2, Yamashita in view of Yamaguchi teaches all the limitations of claim 1. In addition, Yamashita teaches a method, further comprising the step of determining whether a service that the mobile station wants to receive is a multicast service (see col. 6, lines 23-51).

Regarding claim 3, Yamashita in view of Yamaguchi teaches all the limitations of claim 2. In addition, Yamashita teaches a method, wherein if a service that the mobile station wants to receive is not a multicast service, the mobile station maintains an access to a base station controlling the corresponding microcell or a base station controlling the macrocell (see col. 6, lines 23-51).

Regarding claim 7, Yamashita in view of Yamaguchi teaches all the limitations of claim 1. In addition, Yamashita teaches a method, wherein when an area of the macrocell is divided according to available data rates and the mobile station enters the divided area of the macrocell, the C/I for a data rate of the corresponding area is applied based on whether a multicast service is provided to the mobile station (see col. 6, lines 14-34 and col. 8, lines 7-18).

Regarding claim 8, Yamashita in view of Yamaguchi teaches all the limitations of claim 1. In addition, Yamaguchi teaches a method, wherein a data rate which becomes

a criterion for the area division is one of 384 Kbps, 144 Kbps, 64 Kbps and 12.2 Kbps (see p. 4 [0058] and table 5).

Regarding claim 9, Yamashita in view of Yamaguchi teaches all the limitations of claim 1. In addition, Yamashita teaches a method, wherein different data rates are provided based on distance from a center of the macrocell (see col. 6, lines 14-34 and col. 8, lines 7-18).

Regarding claims 6 and 10, Yamashita in view of Yamaguchi teaches all the limitations of claim 1. In addition, Yamashita teaches a method, wherein the base station can request a particular mobile station to measure the C/I at a particular time or by periods, and compares the measured C/I with the C/I for a particular service to determine whether to perform a handover (see col. 5, lines 24-59).

Regarding claims 11, 13 and 15, Yamashita teaches a method for providing a multicast service using a field intensity of available channels in a hierarchical cell structure in a mobile communication system in which a given area is divided into at least one macrocell and at least one microcell overlapping with each other and a mobile station receives the multicast service from the macrocell or the microcell (see col. 3, lines 6-16, col. 4, line 66 through col. 5, line 12 and Fig. 1), the method comprising the steps of: transmitting, by a base station controller, a measured field intensity of available channels in a corresponding macrocell area to the mobile station (see col. 3, lines 25-33 and col. 6, lines 23-34), when the mobile station enters a given microcell and transmits a multicast packet call setup request to a base station to set up a radio bearer message to the base station controller; and performing a handover from the microcell to the

macrocell, if the measured field intensity satisfies the required threshold level for the multicast service (see col. 5, lines 30-39 and col. 6, lines 35-51).

Yamashita fails to explicitly teach a carrier-to-interference ratio (C/I), but instead teaches a field intensity of available channels.

However, using a quality indicator such as a measured carrier-to-interference ratio (C/I) and to determine if the measured C/I satisfies the required C/I to provide a service is very well known in the art, since in existing mobile systems a mobile station accesses the best (e.g. higher carrier-to-interference ratio or carrier-to-adjacent ratio) available cell in the radio network, in order to select an optimum available channel in the radio network. In an analogous field of endeavor, Yamaguchi teaches a method of adaptively assigning a packet rate to a mobile station based on measuring a signal quality of a received signal from a base station, wherein a receive signal quality at a mobile station is defined by an interference level at the mobile station (see p. 1 [0010-0011] and p. 3 [0048-0050]).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of using a quality indicator such as a measured carrier-to-interference ratio (C/I) to adaptively assign a packet rate to a mobile station of Yamaguchi, to the method of Yamashita, in order to decrease undesirable interference to adjacent cells of adjacent base stations and to maintain a high signal quality of a received signal from a base station in communication with the mobile station as per the teachings of Yamaguchi (see abstract).

Regarding claim 12, Yamashita teaches a method for providing a multicast service using a field intensity of available channels in a hierarchical cell structure in a mobile communication system in which a given area is divided into at least one macrocell and at least one microcell overlapping with each other and a mobile station receives the multicast service from the macrocell or the microcell (see col. 3, lines 6-16, col. 4, line 66 through col. 5, line 12 and Fig. 1), the method comprising the steps of: requesting a multicast service that the microcell provides while receiving a call in service in the macrocell; handing over the call in service in the macrocell to the microcell; and simultaneously servicing the multicast service and the call in service in the microcell (see col. 6, lines 35-67 and col. 7, line 50 through col. 8, line 18).

Yamashita fails to explicitly teach a carrier-to-interference ratio (C/I), but instead teaches a field intensity of available channels.

However, using a quality indicator such as a measured carrier-to-interference ratio (C/I) and to determine if the measured C/I satisfies the required C/I to provide a service is very well known in the art, since in existing mobile systems a mobile station accesses the best (e.g. higher carrier-to-interference ratio or carrier-to-adjacent ratio) available cell in the radio network, in order to select an optimum available channel in the radio network. In an analogous field of endeavor, Yamaguchi teaches a method of adaptively assigning a packet rate to a mobile station based on measuring a signal quality of a received signal from a base station, wherein a receive signal quality at a mobile station is defined by an interference level at the mobile station (see p. 1 [0010-0011] and p. 3 [0048-0050]).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of using a quality indicator such as a measured carrier-to-interference ratio (C/I) to adaptively assign a packet rate to a mobile station of Yamaguchi, to the method of Yamashita, in order to decrease undesirable interference to adjacent cells of adjacent base stations and to maintain a high signal quality of a received signal from a base station in communication with the mobile station as per the teachings of Yamaguchi (see abstract).

Regarding claim 14, Yamashita teaches a method for providing a multicast service using a field intensity of available channels in a hierarchical cell structure in a mobile communication system in which a given area is divided into at least one macrocell and at least one microcell overlapping with each other and a mobile station receives a multicast service from the macrocell or the microcell (see col. 3, lines 6-16, col. 4, line 66 through col. 5, line 12 and Fig. 1), the method comprising the steps of: requesting a multicast service that the macrocell provides while receiving a call in service in the microcell; handing over a call in service in the microcell to the macrocell; and simultaneously servicing the multicast service and the call in service in the macrocell (see col. 6, lines 35-67 and col. 7, line 50 through col. 8, line 18).

Yamashita fails to explicitly teach a carrier-to-interference ratio (C/I), but instead teaches a field intensity of available channels.

However, using a quality indicator such as a measured carrier-to-interference ratio (C/I) and to determine if the measured C/I satisfies the required C/I to provide a service is very well known in the art, since in existing mobile systems a mobile station

accesses the best (e.g. higher carrier-to-interference ratio or carrier-to-adjacent ratio) available cell in the radio network, in order to select an optimum available channel in the radio network. In an analogous field of endeavor, Yamaguchi teaches a method of adaptively assigning a packet rate to a mobile station based on measuring a signal quality of a received signal from a base station, wherein a receive signal quality at a mobile station is defined by an interference level at the mobile station (see p. 1 [0010-0011] and p. 3 [0048-0050]).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of using a quality indicator such as a measured carrier-to-interference ratio (C/I) to adaptively assign a packet rate to a mobile station of Yamaguchi, to the method of Yamashita, in order to decrease undesirable interference to adjacent cells of adjacent base stations and to maintain a high signal quality of a received signal from a base station in communication with the mobile station as per the teachings of Yamaguchi (see abstract).

Regarding claim 16, Yamashita teaches a method for providing a multicast service using a field intensity of available channels in a hierarchical cell structure in a mobile communication system in which a given area is divided into at least one macrocell and at least one microcell overlapping with each other and a mobile station receives the multicast service from the macrocell or the microcell (see col. 3, lines 6-16, col. 4, line 66 through col. 5, line 12 and Fig. 1), the method comprising the steps of: requesting a multicast service that the microcell provides while receiving a call in service in the microcell; determining that the multicast service requires a higher date

rate than the microcell usually provides; and simultaneously servicing the multicast service and the call in service in the microcell (see col. 6, lines 23-67 and col. 7, line 50 through col. 8, line 18).

Yamashita fails to explicitly teach a carrier-to-interference ratio (C/I), but instead teaches a field intensity of available channels.

However, using a quality indicator such as a measured carrier-to-interference ratio (C/I) and to determine if the measured C/I satisfies the required C/I to provide a service is very well known in the art, since in existing mobile systems a mobile station accesses the best (e.g. higher carrier-to-interference ratio or carrier-to-adjacent ratio) available cell in the radio network, in order to select an optimum available channel in the radio network. In an analogous field of endeavor, Yamaguchi teaches a method of adaptively assigning a packet rate to a mobile station based on measuring a signal quality of a received signal from a base station, wherein a receive signal quality at a mobile station is defined by an interference level at the mobile station (see p. 1 [0010-0011] and p. 3 [0048-0050]).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of using a quality indicator such as a measured carrier-to-interference ratio (C/I) to adaptively assign a packet rate to a mobile station of Yamaguchi, to the method of Yamashita, in order to decrease undesirable interference to adjacent cells of adjacent base stations and to maintain a high signal quality of a received signal from a base station in communication with the mobile station as per the teachings of Yamaguchi (see abstract).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shimono et al., U.S. Patent Number 6,873,847 discloses mobile communication system using multiplex zone configuration and operation method of the same.

Fapojuwo, U.S. Patent Number 6,212,389 discloses methods and apparatus for controlling allocation of traffic channels in macrocell/microcell telecommunications networks.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony S. Addy whose telephone number is 571-272-7795. The examiner can normally be reached on Mon-Thur 8:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc M. Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony S. Addy
March 31, 2006

ELISEO RAMOS-FELICIANO
PRIMARY EXAMINER